

# Javascript Fundamentals

Today go through following topics

- Hello, world!
- Code structure
- The modern mode, "use strict"
- Variables
- Data types
- Interaction: alert, prompt, confirm
- Type Conversions
- Basic operators, maths
- Comparisons
- Conditional branching: if, '?'
- Logical operators
- Nullish coalescing operator '??'
- Loops: while and for
- The "switch" statement
- Functions

There are various links given, those cover all these topics, please go through as much as possible and the new we would have discussion on the same.

**Happy Learning**

# Javascript Fundamentals

<https://javascript.info/first-steps>

- Hello, world!
- Code structure
- The modern mode, "use strict"
- Variables
- Data types
- Interaction: alert, prompt, confirm
- Type Conversions
- Basic operators, maths
- Comparisons
- Conditional branching: if, '?'
- Logical operators
- Nullish coalescing operator '??'
- Loops: while and for
- The "switch" statement
- Functions

- Function expressions
- Arrow functions, the basics
- JavaScript specials

[https://developer.mozilla.org/en-US/docs/Learn/Getting\\_started\\_with\\_the\\_web/JavaScript\\_basics](https://developer.mozilla.org/en-US/docs/Learn/Getting_started_with_the_web/JavaScript_basics)

- What is JavaScript?
- A Hello World Example
- Language Basics
  - Variables
  - Comments
  - Operators
  - Conditionals
  - Functions
  - Events
  - Example

Javascript Info

<https://javascript.info/>

<https://code.tutsplus.com/courses/javascript-fundamentals/lessons/introduction>

Videos

- 1.Introduction2 lessons, 07:42
  - 1.1Introduction02:12
  - 1.2Setup05:30
- 2.Language Fundamentals8 lessons, 1:00:53
  - 2.1Variables06:33
  - 2.2Data Types11:28
  - 2.3Arithmetic, Assignment, and Comparison Operators10:24
  - 2.4Unary, Logical, Comma, and Spread Operators09:02
  - 2.5Operator Precedence03:50
  - 2.6Reserved Words04:17
  - 2.7Strict Mode04:34
  - 2.8Functions10:45
- 3.Data Structures5 lessons, 22:52
  - 3.1Arrays04:29
  - 3.2Objects04:30
  - 3.3Sets04:57
  - 3.4Maps04:21
  - 3.5Weak Maps and Weak Sets04:35
- 4.Controlling Program Execution7 lessons, 37:06
  - 4.1Conditionals07:49
  - 4.2Switch Statements04:41
  - 4.3The For Loop06:39
  - 4.4The `for .. in` Loop05:17
  - 4.5The `for .. of` Loop04:02
  - 4.6Iterators05:03
  - 4.7While Loops03:35
- 5.Using JavaScript13 lessons, 1:44:36
  - 5.1Working With Strings09:32

- 5.2Template Literals05:46
- 5.3Working With Numbers06:57
- 5.4Working With Arrays12:53
- 5.5Iterating and Transforming Arrays07:33
- 5.6Working With the Object Type13:55
- 5.7Object Literal Extensions06:45
- 5.8Working With Object Instances06:45
- 5.9Getters and Setters05:00
- 5.10Custom Objects11:28
- 5.11The `Math` API04:54
- 5.12Working With Dates and Times08:10
- 5.13The `Array` Constructor04:58
- 6.Functions8 lessons, 56:07
  - 6.1The `this` Object06:15
  - 6.2Working With Functions10:11
  - 6.3Scope07:37
  - 6.4Arrow Functions06:59
  - 6.5Generator Functions08:13
  - 6.6Closures05:00
  - 6.7Prototypes06:26
  - 6.8Default and Rest Parameters05:26
- 7.Miscellaneous6 lessons, 52:39
  - 7.1Destructuring Assignments08:09
  - 7.2AJAX08:30
  - 7.3Regular Expressions10:51
  - 7.4More About Regular Expressions08:38
  - 7.5Classes06:48
  - 7.6ES Modules09:43
- 8.Working With the DOM6 lessons, 37:39
  - 8.1Selecting HTML Elements05:02
  - 8.2Manipulating HTML Elements07:40
  - 8.3DOM Traversal05:25
  - 8.4Adding and Removing Elements04:45
  - 8.5Creating Elements and Other Nodes04:39
  - 8.6DOM Events10:08
- 9.Web APIs4 lessons, 17:41
  - 9.1The Selector API03:03
  - 9.2Geolocation05:29
  - 9.3Web Storage05:24
  - 9.4Web Workers03:45
- 10.Asynchronous JavaScript5 lessons, 26:23
  - 10.1Promises09:52
  - 10.2Promise Chaining05:11
  - 10.3The async Keyword03:21
  - 10.4The await Keyword04:04
  - 10.5More About async and await03:55
- 11.Conclusion1 lesson, 00:43
  - 11.1Conclusion00:43

<https://www.freecodecamp.org/news/learn-these-javascript-fundamentals-and-become-a-better-developer-2a031a0dc9cf/>

<https://www.searchenginejournal.com/technical-seo/javascript-fundamentals-cheat-sheet/#close>

Self-Executing Function

<http://markdalglish.com/2011/03/self-executing-anonymous-functions/>

YouTube Videos

JS Fundamentals

<https://www.youtube.com/watch?v=vEROU2XtPR8>

JavaScript how to properly declare a variable ( Local vs Global, block scope , constants )

<https://www.youtube.com/watch?v=v1Q7pkcpShs&list=PL7pEw9n3GkoVYU-ZKBrDnxliiUn0YP-uO>

Javascript Best Practices

[https://www.youtube.com/watch?v=NibsUd\\_InPU](https://www.youtube.com/watch?v=NibsUd_InPU)

Self-Executing Functions

<https://www.youtube.com/watch?v=6ZtxJzYg-FU>

## Assignments

- Write a JavaScript for loop that will iterate from 0 to 15. For each iteration, it will check if the current number is odd or even, and display a message to the screen. Go to the editor

Sample Output :

"0 is even"

"1 is odd"

"2 is even"

- Write a JavaScript program to get the current date.  
Expected Output:  
mm-dd-yyyy,  
mm/dd/yyyy or  
dd-mm-yyyy,  
dd/mm/yyyy
- Write a JavaScript program to determine whether a given year is a leap year in the Gregorian calendar
- Write a JavaScript program to find 15<sup>th</sup> August will come on Sunday between 2020 and 2050
- Write a JavaScript program which compute, the average marks of the following students  
Then, this average is used to determine the corresponding grade. Go to the editor
- | Student Name | Marks |
|--------------|-------|
| Sachin       | 80    |
| Rahul        | 77    |
| Sourav       | 88    |
| Virat        | 95    |
| Yuvra        | 68    |
- The grades are computed as follows :

Range	Grade
<60	F
<70	D
<80	C
<90	B
<100	A

## Things discussed in Class (Notepad)

What is Javascript?

Client Side Scripting Language

+

Server Side Scripting Language

+

Object Oriented Programming

Java, C#

can i run it in browser

Yes

Plugin

applet

silverlight

Javascript - javascript engines available there in browser.

Same Google's V8 Engine is being used by Node.js and now you can executed js outside of the browser that means at the server side.

Java, C# on the server

Runtime

Java

JVM

C#,VB.Net

CLR (Common Language Runtime)

C, C++

C Runtime

Javascript

Node.exe

nodejs.org

conceptually 3 things are downloaded

Node.exe

- runtime

Node.js

- kind of sdk, fcl

npm

- Node Package Manager

npm - Node Package Manager

manage client side as well as server

package managers

Two more

bower - client side packages

yarn - both the sides

ORM - Object Relational Mapping

Java - Hibernate

.Net - Entity Framework

No SQL Database - mongoDB

ODM - Object Data Mapping

MongoDB - Mongoose

ECMAScript - Standards or Specifications

based on this javascript is being implemented

ES5 / Vanilla JS - Understandable to all the browsers

ES6/ ES2015 - More Object Oriented - Understandable to modern browsers

class in ES5 - function Person(){}  
class in ES2015 - class Person{}

Transpiler

(Transform + Compile)

ES2015 to ES5 - babel

TypeScript to ES5 - tsc (Typescript compiler)

Web Site / Web Application

HTML - Content and Structure

Javascript - Interactivity and Behaviour

CSS - Styles and Layout